

Listing of the Claims

This listing of claims replaces all prior versions and listing of claims in the application:

- 1.-2. (Canceled)
3. (Previously presented) The method of claim 12, wherein the growth-limiting factor is silicate deprivation.
4. (Canceled)
5. (Previously presented) The method of claim 12, further comprising the step of applying an additional nutrient deprivation to said culture.
6. (Previously presented) The method of claim 12, wherein the growth-limiting factor is applied once the culture has reached a concentration of at least 10^7 cells/mL.
- 7-11. (Canceled)
12. (Currently amended) A method for producing polyunsaturated fatty acids from a diatomaceous algal culture, wherein the alga is ~~Chaetocerotaceae~~ Chaetoceros gracilis or ~~Skeletonemaceae~~ Skeletonema costatum, comprising the steps of:
 - a. applying at least one growth-limiting factor to a culture of diatomaceous ~~Chaetocerotaceae~~ Chaetoceros gracilis or ~~Skeletonemaceae~~ Skeletonema costatum alga at the end of the exponential growth phase after 6 to 7 days of culture, causing growth arrest of said culture and increased production and stocking by said ~~Chaetocerotaceae~~ Chaetoceros gracilis or ~~Skeletonemaceae~~ Skeletonema costatum alga of polyunsaturated fatty acids; and
 - b. recovering the polyunsaturated fatty acids from said ~~Chaetocerotaceae~~ or ~~Skeletonemaceae~~ alga.
13. (Currently amended) A method for producing Omega-3 polyunsaturated fatty acids from a diatomaceous algal culture, wherein the alga is ~~Chaetocerotaceae~~ Chaetoceros gracilis or ~~Skeletonemaceae~~ Skeletonema costatum, comprising the steps of:
 - (a) monitoring the growth of said algal culture until said culture has reached the end of the exponential growth phase;
 - (b) applying silicate deprivation to said culture at the end of the exponential growth phase, wherein said silicate deprivation induces an increase in the production of Omega-3 polyunsaturated fatty acids when compared with a silicate replete culture; and
 - (c) recovering the long-chain polyunsaturated fatty acids from said algal culture.

14. (Currently amended) A method of increasing the yield of Omega-3 polyunsaturated fatty acids produced in a diatomaceous algal culture, wherein the alga is ~~Chaetocerotaceae~~ Chaetoceros gracilis or ~~Skeletonemaceae~~ Skeletonema costatum, comprising the steps of:
- (a) monitoring the growth of the algal culture until the culture has reached the end of the exponential growth phase; and
 - (b) applying silicate deprivation to the culture at the end of the exponential growth phase;
- wherein the silicate deprivation induces an increase in the production of Omega-3 polyunsaturated fatty acids in the alga compared with that of a silicate replete algal culture.